REMARKS

Applicants and the undersigned are most grateful for the time and effort accorded the instant application by the Examiner. The Office is respectfully requested to reconsider the rejection present in the outstanding Office Action in light of the following remarks.

Claims 1-17 were pending in the instant application at the time of the outstanding Office Action. Of these claims, Claims 1, 8, and 15 are independent claims; the remaining claims are dependent claims. Claims 1-17 have been rejected and the rejection made final. In response, Applicants have filed a Request for Continued Examination and this Amendment.

It should be noted that Applicants are not conceding in this application the claims amended herein are not patentable over the art cited by the Examiner, as the present claim amendments are only for facilitating expeditious prosecution. Applicants respectfully reserve the right to pursue these and other claims in one or more continuations and/or divisional patent applications. Applicants specifically state no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Rejections under 35 USC 112

Claims 1-7 and 15 stand rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement. Applicants respectfully request reconsideration and withdrawal of these rejections.

Although Applicants respectfully disagree with the Examiner, solely in an effort to expedite prosecution of the instant application, Applicants have amended claims 1 and 15 to remove the offending language. By virtue of their dependence from claim 1, Applicants respectfully submit that claims 2-7 also now unmistakably comply with 35 USC 112.

Rejections under 35 USC 101

Claims 1-17 stand rejected under 35 U.S.C. § 101 as substantially drawn to manipulating abstract speech models. (*Office Action*, pp. 6). Reconsideration and withdrawal of these rejections is respectfully requested.

Even if a claims 1-17 were directed towards manipulating "abstract speech models", these claims are patentable so long as each claim is, as a whole, a practical application. MPEP § 2106(IV)C(2). A claim is directed to a practical application when it: (A) "transforms" an article to a different state; or (B) otherwise produces a useful, concrete and tangible result. *Id.* If the Examiner finds such a transformation, the Examiner shall end the inquiry. MPEP, § 2106(IV)C(2)(1).

To the extent that any abstraction is contained in claims 1-17, it is directed to a practical application, namely receiving inputs (e.g., speech) and transforming these inputs into features, i.e., patterns (e.g., speech feature vectors) for the useful, concrete and tangible result of pattern recognition (e.g., speaker recognition/verification). The invention is directed to an apparatus, method and program storage device which, *inter alia*, improves pattern recognition by building a target model that can compensate for

potential environmental mismatch by utilizing various base models created from environmentally informed inputs, thus providing improved pattern recognition and classification results. *Specification*, pp. 2, lines 10-13. As related in the specification, "problems in automatic pattern recognition systems...arising with patterns...being observed either in the same or a new environment...as compared to the one seen during the previous environment" result in "a degradation of the system recognition accuracy and represent one of the major challenges in the pattern recognition area." *Id* at pp. 1, lines 4-15. The specification makes a non-limiting example of speaker recognition/verification, pp. 1, lines 4-8, but also states that "the method is nonetheless applicable to essentially any classification problem involving two or more classes." *Id* at pp. 7, lines 14-15. Thus, Applicants respectfully submit that the instantly claimed invention was and continues to be directed towards statutory subject matter, i.e. an apparatus, method, and program storage device for achieving improved pattern recognition.

Solely in an effort to facilitate expeditious prosecution of the instant application, Applicants have amended the independent claims to clarify that the invention is within the statutory subject matter contemplated by 35 USC 101. Claim 1 now recites, *inter alia*, "wherein the apparatus produces a pattern recognition decision." Claim 1. The remaining independent claims have been amended to recite similar language. Notably, the independent claims now recite that a pattern recognition decision is produced, thus giving a useful, concrete and tangible result to a user of the recognition apparatus, e.g., the apparatus allows a user "[t]o arrive at a verification decision, i.e., to either accept or

reject the utterance X as being spoken by the target speaker or not." *Specification*, pp. 8, lines 6-7. Applicants therefore respectfully request reconsideration and withdrawal of these rejections.

Notwithstanding the foregoing, Applicants are aware of the Office's continued focus on the requirements of 35 USC 101. If the Examiner finds that there are remaining issues regarding 35 USC 101, Applicants request that the Examiner contact the undersigned by telephone before issuing another Office Action.

Rejections under 35 USC 102(b)

Claims 1-17 stand rejected under 35 USC 102(b) as being anticipated by Rahim (U.S. Patent No. 5,960,397) (hereinafter "Rahim"). Applicants respectfully request reconsideration and withdrawal of these rejections.

As best understood, Rahim teaches a "system and method of recognizing an acoustic environment to *adapt a set of based recognition models* to the current acoustic environment for subsequent speech recognition." *Rahim*, Title (emphasis added). The system utilizes two sets of models, a base set, and a secondary set, the secondary set trained on one or more particular acoustic environments. *Id* at abstract. Essentially *Rahim teaches adjusting a naïve base set of models by applying a projector* obtained from an environmentally informed set of trained models *to obtain an adjusted set of base models*. *Id* at Col. 5, lines 9-29.

This stands in stark contrast to the instantly claimed invention wherein the base model (outputs therefrom) that best matches the environment is used to build a stacked

model, while the second level model and classifier remains unchanged. As recited in claim 1, "a transform arrangement which produces a stacked target model based on a feature vector corresponding to the environment from which the at least one base model originated, wherein there is independence between the at least one base model and the stacked target model allowing for a single enrollment of a target class." Claim 1 (emphasis added). In other words, in the instantly claimed invention, the entire base model system is switched to best match the environment, while the second level model and classifier (defining the target class) remains unchanged. This is in stark contrast to Rahim, wherein internal parameters of the model base system are being adapted (e.g., via the projector) to mitigate mismatch. *Rahim*, Abstract. Moreover, in the instantly claimed invention, the target classifier is a stacked model and uses likelihoods produced by the base system as input features. In Rahim, there is not such stacking at all. As the instant specification makes clear by using an example, "[a]n important point in the above-discussed adaptation is the independence of the base set and the target model, which allows for a single enrollment of the target class." *Specification*, pp. 6, lines 14-15. Thus, Applicants respectfully submit that the instantly claimed invention is clearly distinguishable from Rahim and request reconsideration and withdrawal of these rejections.
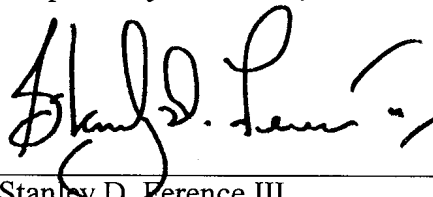
Conclusion

In view of the foregoing, it is respectfully submitted that independent Claims 1, 8, and 15 fully distinguish over the applied art and are thus allowable. By virtue of

dependence from Claims 1 and 8, it is thus also submitted that Claims 2-7, 9-14, and 16-17 are also allowable at this juncture.

In summary, it is respectfully submitted that the instant application, including Claims 1-17, is presently in condition for allowance. Notice to the effect is hereby earnestly solicited.

If there are any further issues in this application, the Examiner is requested to contact the undersigned at the telephone number listed below prior to the issuance of a further Office Action.

Respectfully submitted,

Stanley D. Ference III
Registration No. 33,879

Customer No. 35195
FERENCE & ASSOCIATES LLC
409 Broad Street
Pittsburgh, Pennsylvania 15143
(412) 741-8400
(412) 741-9292 - Facsimile

Attorneys for Applicant